DOCUMENT RESUME

ED 300 009 IR 052 460

TITLE IFLA General Conference, 1987. Division of Special Libraries. Biological and Medical Science Libraries Section. Social Science Libraries Section. Papers.

INSTITUTION International Federation of Library Associations, The Hague (Netherlands).

PUB DATE Aug 87

NOTE 41p.; Papers presented at the International Federation of Library Associations (IFLA) General Conference (53rd, Brighton, England, August 16-21, 1987).

PUB TYPE Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.

DESCRIPTORS *Biological Sciences; Continuing Education; Developed Nations; Developing Nations; Foreign Countries; Health Education; Information Technology; Interactive Video; *Library Services; *Medical Libraries; *Optical Data Disks; Scientific and Technical Information; *Social Sciences; *Special Libraries; Standards; Technological Advancement; Teleconferencing

ABSTRACT

Six of the nine papers in this collection focus on biological and medical science libraries; the remaining three are concerned with social science libraries. The papers on biological and medical science libraries appear first in this list: (1) "Standards for Medical and Health Care Libraries: Canada" (Jan Greenwood, Canada); (2) "Standards for Medical and Health Care Libraries: Europe" (Ursula Hausen, Switzerland); (3) "Standards for Medical and Health Care Libraries: Problems and Prospects" (Fiona Mackay Picken, United Kingdom); (4) "Coming Soon: The Science Citation Index on Compact Disc" (Theresa Rosen, United States); (5) "Interactive Videodisc: Resource and Learning Material" (David Clark and Elizabeth Oliver, United Kingdom); (6) "CD-ROM Technology and Its Potential for New Bibliographic Products and Services" (Tony McSean, United Kingdom); (7) "CD-ROM in the Social Science Reference Room" (Bruce Bonta, United States); (8) "Continuing Education in Information Technology" (Darlene Weingand, United States); and (9) "Advancing Optical Disc Technology for Social Sciences in Non-High Tech Societies" (Leena Siitonen, United States). (CGD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED300009

Division of Special Libraries

SECTION OF BIOLOGIAL AND MEDICAL SCIENCE LIBRARIES

Sessions: 140 Wednesday 08.30 – 10.00
170 Wednesday 15.00 – 16.30

Standards for medical and health care libraries: Canada *(86-BIOL-2-E)*	Jan Greenwood Ontario Medical Association Toronto Canada
Standards for medical and health care libraries: Europe *(3-BIOL-1-E)*	Ursula Hausen World Health Organization Geneva Switzerland
Standards for medical and health care libraries: problems and prospects *(88-BIOL-4-E)*	Fiona Mackay Picken British Postgraduate Medical Federation London UK
Coming soon: the Science Citation Index on compact disc *(87-BIOL-3-E)*	Theresa H Rosen Institute for Scientific Information Philadelphia USA
Interactive videodisc: resource and learning material *(95-BIOL-4-E)*	David R Clark University of London Audio-Visual Centre Elizabeth M Oliver British Universities Film and Video Council UK
CD-ROM technology and its potential for new bibliographic products and services *(137-BIOL-5-E)*	Tony McSean British Library Bibliographic Services London UK

SECTION OF SOCIAL SCIENCE LIBRARIES

Session: 162 Wednesday 13.00 – 14.30

CD-ROM in the social science reference room *(28-SOC-1-E)*	Bruce D Bonta University Park USA

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
A.L. Van Wesemael
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

TM 058 760

Data conversion by Saztec Europe
as a contribution to IFLA 1987

BEST COPY AVAILABLE

STANDARDS FOR MEDICAL AND HEALTH CARE LIBRARIES: CANADA

Jan Greenwood, *Manager of Library Services, Ontario Medical Association, Toronto, Canada*

ABSTRACT

Canada has never enjoyed a government-supported regional medical library system. Health sciences librarians tended for many years to work in isolation to improve hospital libraries, assisted only by the vague standards of the Canadian Council on Hospital Accreditation (CCHA). In 1975 a Working Party of librarians published Canadian Standards for Hospital Libraries, *which was largely incorporated into CCHA's* Guide to Hospital Accreditation, 1977. *Since that time subsequent editions of the* Guide *have not received input from the health sciences library community, and anomalies in the text are beginning to appear. The Canadian Health Libraries Association has recently appointed a Task Force to address this issue.*

In Canada the institution which has been solely responsible for accrediting hospitals since 1958 is the Canadian Council on Hospital Accreditation (CCHA). The role of CCHA, in part, is "to establish standards for hospital operation and to assist hospitals to attain these standards..." (1). During the years 1952- 1958 accreditation of Canadian hospitals was conducted by the Joint Commission on Accreditation of Hospitals (JCAH) in the U.S., with Canadian representation; prior to that, from 1919, by the American College of Surgeons (2).

From its inception it was the intention of CCHA to provide qualitative and descriptive, rather than quantitative and specific standards. In recent years CCHA has published irregularly four guides to accreditation, each of which addresses the needs of a particular kind of health care institution: acute health care facilities and mental, rehabilitation and long term care centres. Each guide provides standards for up to 27 hospital programs and services, among which is included "Staff Library Services". The content of the section on "Staff Library Services" is essentially the same in each of the four current guides.

As the term implies, the "Staff Library Services" mandated by CCHA are those serving a hospital's professional and ancillary staff. The term "hospital library" is the one which is usually used in Canada to describe such services; libraries, where they exist for patients, are called "patient libraries".

Unlike their American and British colleagues, hospital librarians in Canada have never enjoyed government support for regional co-operation among medical libraries. Therefore, throughout the sixties and early seventies, individual librarians tended to work in isolation to improve hospital libraries with only the rather vague CCHA standards on "Staff Library Services" by which to measure their progress. Their greatest support came from the medical community which frequently provided the funding needed for individual hospital libraries, and any regional programs which managed to flourish were the result of individual medical school initiatives (3). One effect of there being no formal regional co-operation was a total lack of consistency in the library services offered by apparently similar hospitals across the country.

In 1973 a Working Party was finally established to develop new standards that would provide hospital librarians with some concrete data for measuring their success. The deliberations of the Working Party have been thoroughly documented by Flower (4). The impetus for this group came from the Associate Committee on Medical School Libraries of the Association of Canadian Medical Colleges, and the Health Sciences Division of the Canadian Association of Special Libraries and Information Services. This Working Party comprised four librarians from a variety of settings; The Academy of Medicine (Toronto), a society of Ontario physicians dedicated to the advancement of the medical sciences, a medical school library, the Canadian Hospital Association and the Ontario Medical Association (OMA).

After obtaining the approval of the medical library community for the first draft of the new standards, the Working Party turned to the OMA for endorsement. Following approval from the OMA Board of Directors the standards were accepted by the Canadian Medical Association and the College of Family Physicians of Canada, and were submitted to the CCHA (5). The new *Canadian Standards for Hospital Libraries* was thus published in its entirety in *CMAJ* 1975 May 17; 112(10); the *Guide to Hospital Accreditation, 1977* subsequently incorporated a substantial portion of the new standards in its section on "Staff Library Services", but its format did not permit publication of some specific recommendations, a fact which has not always been clear in the literature (6).

In drafting these standards the Working Party used the format of the CCHA 1972 *Guide to Hospital Accreditation*, but found in a 1968 publication of L'association canadien des bibliothecaires de langue francaise (7) a new way of gauging hospital information needs. Instead of adopting number-of-beds as the sole criterion for measurement, this group from Quebec had classified hospitals according to their teaching responsibilities. These criteria for teaching hospitals were combined in the new standards with a number-of-beds measure for small, less complex institutions (8). The final document also included three appendices which offered pragmatic minimum requirements for personnel, collections and physical space in hospitals of varying complexity; it was these appendices which CCHA chose to omit from the 1977 *Guide*.

Despite this omission, however, the 1977 library standards were a great improvement upon those published earlier. Indeed not since that time have hospital librarians had such direct input into the process of establishing standards for hospital libraries which is why, in November 1986, the Board of Directors of the Canadian Health Libraries Association (CHLA) appointed a Task Force on Hospital Library Standards. The mandate of the Task Force is primarily to revise the 1975 *Canadian Standards for Hospital Libraries* (9) in a format that would be acceptable to CCHA. Part of the task, of course, will be to assess changes which have veen made to CCHA standards for "Staff Library Services" since 1977, changes which have been few and subtle, but insidious, and the impact of which is already being felt in some hospitals.

A major improvement in the 1977 CCHA standards was the acceptance of the hospital library as a discrete department with its own budget, reporting directly to the administration. Previous editions had not addressed at all the question of how hospital libraries should be administered. Unfortunately this important requirement was dropped in 1983 in favour of more nebulous guidelines:

"There shall be a written organizational plan which delineates the current responsibilities, relationships and formal lines of communication of library services and the inter-relationships with other services."

and, further:

"The library services shall be represented in planning, decision making and formulation of policies that effect the operation and objectives of the services." (10)

Nowhere do the 1983 and subsequent standards dictate that hospital libraries should report to the administration and, as was noted by Kirchner (11), there has been a growing trend towards amalgamating audio-visual services, in-service education and the library into one heterogeneous group under an umbrella department called "Educational Services". What is disquieting to librarians about this change is that formerly audio-visual services and in-service education departments, sometimes combined, occupied the same rank in the hospital hierarchy as the library, but with different mandates. For the most part those in charge of in-service education are nurses who do not have any responsibility towards the medical staff and, where they are in charge of audio-visual materials and the booking of classrooms; indeed tasks which are normally delegated to the para-professional in the library setting. Thus is emerging the curious phenomenon of librarians who are no longer department heads reporting to another department head with a narrower mandate, and whose department has not even been included in the standards published by CCHA.

It is likely that the major reason for this and other changes to the CCHA standards had less to do with CCHA's view of the hospital library, than with the current tendency to adopt a format in the *Guides* which is applicable to all standards, irrespective of the hospital department being addressed. Word processing technology has made possible the almost infinite manipulation of the same text for a variety of applications. For example, two of the current CCHA guides, *Guide to Accreditation of Canadian Health Care Facilities, 1986* (12) and *Guide to accreditation of Canadian Mental Health (Psychiatric) Centres, 1986* (13), have amalgamated what used to be separately published standards and complementary questionnaires into one document. Edited without consultation with the hospital library community, the current CCHA section on "Staff Library Services" now gives to certain clerical and record maintenance functions a disproportionate importance, while omitting entirely reference to some of the more specific professional responsibilities peculiar to libraries. If anything the recent editions of the *Guides* are even less helpful to librarians than were those in existence when the Working Party was formed in 1973.

The CHLA Task Force is thus facing many of the problems with which the earlier group had wrestled. Regional co-operation continues to be very much a grassroots phenomenon and problems of isolation have been exacerbated by tremendous advances in technology which have widened, in some cases, the disparities among hospital libraries. In a sense quatitative standards are needed more than ever by the hospital community to balance the CCHA guidelines, but are even more difficult to define as technological changes continue to have an impact on every aspect of hospital library organization.

In 1987, however, the Task Force does have the benefit of the 1975 Canadian standards and MLA's *Minimum Standards for Health Science Libraries in Hospitals* (14), as well as the *Manual for Assessing the Quality of Health Sciences Libraries in Hospitals* (15). Whether it chooses ultimately to adopt a quantitative or a qualitative approach it will undoubtedly give rise to old controversies which have already been well documented (16). In the meantime opinions on the issue are being actively sought from the hospital library community in Canada through CHLA's official journal, *Bibliotheca Medica Canadiana*, and other vehicles. The Task Force hopes to publish a revised set of standards no later than May 1989.

References

1. *Aims and objectives: (development, concepts, role, main objectives and policies) of Canadian Council on Hospital Accreditation‹xi. Ottawa: CCHA, 1982, p.3.*
2. *Ibid, p.2.*
3. *Flower MA: Toward hospital library standards in Canada. Bull Med Libr Assoc* 1978 July; 66(3): 296-301.
4. Ibid, pp. 296-301.
5. Ibid, p. 297.
6. Hutchinson AP, O'Connell MD, Richards BB et al: Proposed standards for professional health sciences library services in hospitals of New York State. *Bull Med Libr Assoc* 1981 July; 69(3): 287-293.
7. L'Association Canadienne des Bibliothecaires de Langue Francais (ACBLF). *Project de normes generales pour les services de bibliotheques dans les hopitaux canadiens.* Montreal: ACBLF, 1968.
8. Flower. Toward hospital library standards, p. 297.
9. Canadian standards for hospital libraries. *Can Med Assoc J‹xi. 1975; 112(10): 1271-1274.*
10. *Standards for accreditation of Canadian health care facilities.* Ottawa: CCHA, 1983, p. 127.
11. Kirchner AK. Standards and hospital libraries: observations on the 1983 edition of the Canadian Council on Hospital Accreditation, standards for accreditation of Canadian health care facilities – library services. *Bibliotheca Medica Canadiana* 1983; 5(3): 101-103.
12. *Guide to accreditation of Canadian health care facilities, 1986.* Ottawa: CCHA, 1986.
13. *Guide to accreditation of Canadian mental health (psychiatric) centres, 1986.* Ottawa: CCHA, 1986.
14. *Minimum standards for health sciences libraries in hospitals.* Chicago: MLA, 1984.
15. *Manual for assessing the quality of health sciences libraries in hospitals.* Albany, NY: The University of the State of New York, 1983.
16. Topper JM, Bradley J, Dudden RF et al. JCAH accreditation and the hospital library: a guide for librarians. *Bull Med Libr Assoc* 1980; 68(2): 212-219.

3-BIOL-1-E

STANDARDS FOR MEDICAL AND HEALTH CARE LIBRARIES: EUROPE

Ursula HAUSEN, *Documents Librarian, World Health Organization, Geneva, Switzerland*

ABSTRACT

A standard is defined by the Random House Dictionary of the English language (1967) as an object considered by an authority or by general consent as a basis of comparison; an approved model; an average or normal requirement, quality, quantity, level, grade. It is not to be confused with a procedure manual of a library or a group of libraries.

The need for standards has been felt in European health libraries the same elsewhere but specific standards have been developed and tested only in a few countries.

The paper briefly reports on the present situation in ten European countries and enumerates the factors which have prevented the establishment of medical and health library standards.

This paper is confined to the situation in Europe, exluding the United Kingdom. It is intended as a short contribution towards a general discussion. I shall report pertinent information from several European countries and I want to take this opportunity to thank all colleagues who have contributed information. The term "standards" is hardly ever used in the documents that have served as references for my report. They can only be seen embedded in the total of library services in any given country, including the standards that exist for any type of library. Therefore all laws, decrees, directives, models, guidelines, regulations and recommendations, as well as documents supporting plans for library buildings and pertinent sections of library rules are relevant.

Federal Republic of Germany (FDR)

Here recommendations exist only for libraries of universities and colleges and one must distinguish between those issued at federal level and those given by the states (Lander). To the former type belong those issued by the Wissenscaftsrat – An Advisory Science Council. These include statements on the development of learned and scientific libraries in learned institutions (1964); core collections in universities (1985); the Medizin-Empfehlungen which concern the organization and planning of institutions for medical research and education (1976); recommendations for depository library space for university libraries in the FDR(1986).

Another organisation with great influence is the Deutsche Forschungsgemeinschaft. It initiated the construction and ensured continued financial support of the hierarchical network for interlending. Its recommendations together with the establishment of the Central Medical Library (ZBM Koln) in 1969 have greatly influenced standards for medical faculty libraries in the country.

At the level of the Lander the higher education commissions of the ministries issued guidelines for collection development to the new universities of the 1960's and early 1970's. The Bavarian recommendations contain figures for actual and recommended growth in the fields of medicine, dentistry and veterinary science:

Total in 1982: 5500 volumes of which 3200 monographs and 2300 periodical volumes representing 1300 titles

Total recommended: 6500 volumes of which 3500 monographs and 3000 periodical volumes

General recommendations for academic library services were issued in the context of the universities, but their autonomy causes a lack of integration of their services into the lower echelons of the public health system. There is a move towards the centralisation of services and away from the traditionally independent departmental and institute libraries. It is perhaps not surprising that after the great losses of library resources that occured during the last war, the authorities have concentrated on quantative rather than qualitative measures.

The Approbationsordnung (accreditation of physicians) of 1970 specified that a "scientific library" was one of the prerequisites for a general hospital to serve as a teaching hospital, but no definition was given for such a library. At this time medical librarians created a Hospital Libraries Task Force (Krankenhausbibliotheken) within the Arbeitsgeneinschaft fur Medizinisches Bibliothekswesen. They assessed the situation of hospital libraries in several of the Lander. With the exception of Baden-Wurttemberg, this exercise yielded dismal results. A new survey is now being undertaken by the German Library Institute. After the first survey, the Task Force published lists of core books and journals in 1975 and 1983, plus a section on organizing services based on American experience.

German Democratic Republic (DDR)

In the DDR, standards for university and college libraries were published in the late sixties by the Methodisches Zentrum fur wissenshaftliche Bibliotheken and by the Arbeitskreis der Hochschulbibliotheken. Some were compulsory. Later, the Institut fur Wissenshaftsinformation in der Medizin was founded in Berlin to set up a national network of health libraries and information for all levels. Many recommendations have been published in its bulletin "DDR-Medizin-Report". They cover general regulations and methodology for district medical libraries and central medical libraries in district hospitals; personnel requirements; guidelines for cooperation within the medical libraries network; budgeting; uniform cataloguing rules and shelf arrangement; circulation policy; minimum collection standards for district medical libraries; the social objectives of

professional library work in hospitals. The development of standards in the DDR is greatly facilitated by the fact that all medical libraries are responsible to the Ministry of Health.

Iceland
Libraries are located in hospitals, but no authority is responsible for them. A group of their librarians has been in contact with the National Bureau of Public Health and the Ministry of Health and held regular meetings with the Icelandic Medical Association. These initiatives have yet to produce action.

Denmark
Medical libraries are again predominantly in hospitals. In 1976 the Library Research Council appointed a committee of librarians which initiated a survey of 150 hospitals. 120 replied and half of these were visited. Few had a central library, but most had small ward of departmental collections; hospital personnel were eager for professional guidance. In response to the expressed need the Library Research Council in 1980 presented a remarkable instrument establishing standards for hospital libraries which emphasised the qualitative aspect. It is a comprehensive and wide-ranging statement on collections, staffing and co-operation.

Norway
The varied types of libraries have no formal standards or guidelines, but only a general statement of principle which requires a library to be available.

Sweden
Recommendations deal mostly with the construction and building of medical, nurshing school and patient libraries. These are the responsibility of the counties and have been summarised in a report from the Federation of County Councils.

Finland
The lack of standards in the country is due to a reason valid in many other places, namely that libraries belong to different organizations, mainly for historical reasons and therefore have local or institutional guidelines. In 1972 a committee prepared a *Proposal to organize Biomedical Information Services*, but these have only partially materialised. There are plans to update them. As in the FDR, trade unions play an important role in defining staff responsibilities. No recommendations exist for collections.

Italy
A Presidential Decree defines the types of medical libraries in universities and although it does not elaborate on staffing or services, it lays down salary scales and a committee structure.

Health Care Libraries are mostly in hospitals. The law on National Health Service staffing does not mention librarians, but a recent law dealing with the relationship between the universities and the Local Health Units to organize the teaching of hospitals states the need for a library.

France
The Direction des Bibliotheques du Ministere de l'Education Nationals is promoting new technologies to support co-operation among libraries. Studies of university libraries are of a general nature. Libraries in hospitals other than teaching hospitals depend on the Ministry of Public Health. No official guidelines or standards have been issued by either ministry.

Yugoslavia
The report on activities in Yugoslavia is well suited to general conclusions and will be taken up later.

Health care and medical library networks are closely linked with the type of health system existing in each country. For example, hospital library standards in the UK would demonstrate a close relationship between hospitals and welfare services. In many other European countries no such link exists. The term health libraries is not used in other European languages. The medical libraries of many universities do not yet think of themselves as health libraries and feel strongly attached to the university system. In such places librarians are just beginning to accept hospital libraries as medical libraries and as component parts of a health information system.

The sources of income for hospital library provision are not readily definable in countries with a federal and decentralised structure as in states with a national health service. Also the diversity of parent institutions greatly impedes agreement on common norms. Not everywhere have librarians and professional groups realized what their responsibility is in regard to a general improvement of health information in their country. It is not even the rule that a library is seen as a necessary part of a new general hospital building as it is for a new university or faculty complex. National hospital associations and societies for hospital staff and health services administrators have yet to accetpt that library service is a professional job and that a professional librarian is needed in each hospital. These administrators have been slow to move in this direction and would be most reluctant to accept standards which define staff and collection requirements, in order to avoid expense. They neglect the importance of health information in the delivery of health care at all levels. In many parts of Europe the information needs of general practitioners are not met by the local hospitals and often not by the medical school library. Library support for para-medical and nursing staff is not handled uniformly, for a variety of reasons.

Conclusions
It must be determined to what extent standards for university libraries apply to medical school libraries. The central role that hospitals play in the primary and secondary levels of care system requires us to speak about standards for hospital libraries. To summarize reports gathered from various countries, there are extensively worked out standards in the DDR and probably in other East European countries, but most other countries in Europe do not have standards. There is raw material for use in the establishment of recommendations for standards and experiences regarding contacts that need to be established.

The Yugoslav experience is helpful. General university and special library standards were applied to medical libraries, but with the establishment of medical library networks the need for standards specific to medical libraries has become urgent. Functional networking among libraries requires a higher degree of standardization. Standards are seen as a step towards excellence. They promote the development of services, which makes possible new objectives, which in turn demands new standards. Numerous reasons cause good standards to become obsolete quite quickly. Minimum standards will serve to successfully combine qualitative and quantitative of appropriate methodology, e.g. questionnaires and interviews, analysis of standards for other types of libraries, qualitative assessment of library services. It will be a glossary of agreed terms and methods that we will have to concern ourselves with now.

88-BIOL-4-E

STANDARDS FOR MEDICAL AND HEALTH CARE LIBRARIES: PROBLEMS AND PROSPECTS

Fiona Mackay Picken, *Regional Librarian North West Thames and British Postgraduate Medical Federation (University of London), UK*

ABSTRACT
The concept of medical and health care library standards is examined from the point of view of problems and prospects. Problems include those of definition, semantics and the diversity of social and cultural backgrounds. How they are produced, what they cover and the problems of international transfer are discussed, along with complications arising once they have been created. The section of Prospects looks at the effects standards usually have and concludes that however frustrating the process of creation, they ultimately have a beneficial effect.

A short list is appended of existing U.K. publications which, though not official standards, have proved useful in that capacity.

1. Introduction
Everyone agrees how simple life should be if there were universally accepted standards, adopted and implemented by everyone. Everyone? Universally? Standards? The simple act of making such a statement brings instant reaction and epitomizes the dilemma, namely what is an acceptable standard for one, is simply impossible to attain for another, is culturally anathema to yet another, and is a dimension that does not exist in yet a fourth. This paper will address problems and speculate on prospects, illustrating these by examples drawn mainly from the U.K.

2. Problems The natural course of a disease has been chosen to illustrate the process, as interesting analogies can be drawn.

a. Definitions and synonyms
What are standards? What is meant by standards? What are they for? Many manuals and recommendations have been produced and even though they are by definition not standards, usage has given them credibility and familiarity and they frequently form the basis of future standards. Synonyms create severe problems mainly because the same English word can mean different things in different countries: a "hospital library" in Scandinavia usually means a general library for patients, as do the existing IFLA Hospital Library Standards[1]. In Canada, hospital library means a staff (medical and health) library; libraries for patients are called patient libraries. In the U.K. and the U.S.A. all these terms are used to mean different things to different people! "Accreditation" and "approval" have totally different meanings either side of the Atlantic, contributing yet further to a semantic nightmare.

b. Aetiology or cultural, social and political background
This seems one of the key areas and one which seriously affects whether a country devises, agrees and adopts standards. Countries with a strong central organization and government such as the German Democratic Republic or the Scandinavian countries are more likely to produce standards which are agreed and acted upon, as are younger countries where traditions are less deeply rooted and there is more willingness to change. For example, Italy and the United Kingdom fall into neither of the two categories mentioned and neither has formal medical library standards. Paradoxically, the U.K., which does not even have a written constitution, has a British Standards Institution and when standards are agreed they are rigiously enforced. Much European and U.S. electrical wiring makes the average Briton's hair stand on end. Cultural and social attitudes clearly do play an important part and the willingness to accept contols and adopt standards is vital.

c. Transmission, or how do you catch standards
It appears that the literature, as well as verbal transmission, creates in individuals the desire to reproduce the benefits locally which are reported elsewhere. It is very satisfying to read a printed document which states bluntly "There shall be one X and 2 Ys in each institution" or "There shall be a minimum of X thousand which shall increase at a yearly rate of A%". Standards are clearly very infectious and promise solutions and remedies hitherto unattainable.

d. Diagnosis
Problems in diagnosis relate to deciding what areas could be expected to benefit from standards. Salaries spring to mind. In the U.K., there are standard academic grades with specific salaries attached to each grade so that a full-time professor of mechcanical engineering gets paid the same in any English University and also gets paid the same as a professor of history of art. This is not the case in the U.S.A. In British medical and health care libraries there are at least five different employing authorities all with their own scales. A standard scale is therefore very desirable but it is very difficult to reach agreement when negotiations hve to take place with so many. Encouragingly, the Library Association recommended salary scales for librarians in the National Health Service[2] are becoming increasingly accepted, probably because they are linked to existing agreed scales and are realistic. A serious problem arises, however, when the recommended minimum standard is also regarded as the maximum standard.

e. Different diagnosis
Relating one's own situation to that elsewhere is very comlicated, even in one's own country. Trying to draw parallels internationally is almost impossible, as the bases used for measuring are infinite. The main merit of comparability seems to lie in identifying areas that can be measured and then applying them to one's own situation. Health systems are organized and financed so differently from country to country and the relative value of levels of funding is so variable that international comparisons can be sterile or meaningless. Attitudes to paying for services, the supplementing of (official) funds, affect the overall provision nad national standards take this into account, sometimes unwittingly.

f. Treatment, or formulation and application of standards
Once it has been decided that it would be advantageous to create standards, the real battle begins. Not only has a formula to be devised which will produce results that mean something, but thoes producing standards have to agree amongst themselves, It is exremely difficult to devise a question which is unambiguous to everyone. Having devised questions, one gets answers and only then do the real problems begin – the interpretation of results. Study of existing published standards reveals that this is a universal problem. Three things seem to be commonly agreed as regards medical and health libraries. 1. It is not possible to produce one standard for all types and sizes of library. 2. It is not possible to devise a complete series of questions which can be answered *and* interpreted by non-librarians. 3. Once an agreed set of standards has been produced, mechanisms have to be built in to keep them up to date, which leads us on to "complications".

g. Comlications
Needless to say, standards are synonymous with comlications. As with their production, they seem to generate three main problems:

1. The production of standards agreed by those responsible for creating them does not ensure that they are accepted by the authorities. Sometimes the mere fact they they now exist causes the authorities to adopt a negative attitude and refuse to acknowledge them, often due to fear of the consequences.
2. If specific figures are actually detailed – "50 subscriptions should be the minimum", "Salaries should range between £X and £Y", even if accepted they can become simultaneously a ludicrously ambitious goal and a crippling restriction.
3. Constant vigilance and thus revision is essential if standards are not to fossilize or fall behind. Changes in areas seemingly unrelated to library provision have to be taken into account and weighed for their possible effect on libraries. this uncludes reorganization and new services as well as technical advances. It is depressing to those who have struggled for a long time, somtimes years, not only to come up against blank walls but to realize that they have taken on a never-ending task.

3. Prospects
Prognosis
Having diagnosed and treated the problems, what sort of results can be expected? Despite the complications just listed, there are some hopeful aspects. One is that whether the standards are officially accepted or not, if they are sensibly formulated and lay down reasonably attainable levels, professional librarians will start to use them anyway. They will create a measurable level of activity, finance and staffing between similar libraries. Comparisons made between existing libraries of comparable nature will inevitably produce a "best" and a "worst", one at the top of the list and one at the bottom. If the one at the bottom publicizes this fact, it is rare that no improvements are made. Another library is then pushed down to the bottom of the pile and the process repeats itself. Unpublished evidence shows a comparision between 20 such libraries. In one year (1986/7), an 18% average increase in budget took place.

Another prospect is afforded by international comparisons. The more other countries produce standards which are accepted and produce results the more encouragement is given to those yet to achieve this goal. The greater the variety of countries suceeding, the more examples are available and the easier it is to devise national standards applicable to a particular country. The U.K. has not yet suceeded in producing an officially recognized set of standards for Medical and Health Care libraries. Over the years certain publications, statements or recommendations have been used as "guidelines" and to a certain extent these have taken on the characteristics of standards. A short list appears in the references[3-6].

Conclusion
While recognizing all the problems relating to the creation, publishing and acceptance of standards, their actual existance does seem to bring about improvements, albeit slowly. It can thus be concluded that monitoring what happens elsewhere, adapting these ideas to local conditions and creating the beginning of a set of standards is of value and that it is worthwhile undertaking.

References

1. International Federation of Library Associations *IFLA/FIAB Libraries in hospitals sub-section* IFLA Standards for libraries in hospitals (general service) Unesco Bulletin for Libraries 1969 *23* (2) Mar/Apr 70-76
2. Library Association Salary Guide No. 2. Recommended salary scales for librarians in the National Health Service 1986/87 (published annually).
3. G.B. Department of Health and Social Security Library services in hospitals HM (70) 23. DHSS 1970
4. Library Association Hospital libraries: recommended standards for libraries in hospitals – 1972. Library Association, 1972.
5. G.B. Department of Health and Social Security. Accomodation for Education. Draft September 1985, DHSS 1985.
6. Hague, H. in: Daniels, V. Medical textbook review, Cambridge Medical Books, 9th ed. 1987 (in press).

87-BIOL-3-E

COMING SOON: THE SCIENCE CITATION INDEX ON COMPACT DISC

Theresa H. Rosen, *Assistance Vice President, Index Products Division, Institute for Scientific Information, Philadelphis, Pennsylvania USA*

ABSTRACT *The Institute for Scientific Information is currently developing a compact disc version of the Science Citation Index (SCI). The Compact Disc Edition of the SCI will be an enhanced microcomputer-based version of the print SCI. Like its print counterpart, the SCI CD Edition will provide in- depth access to more than 3,300 scientific and technical journals published internationally – approximately 600,000 source articles per year. The searching capabilities of the SCI CD Edition will provide much of the flexibility of an online file as well as enhance the many benefits of the SCI in print.*

Background
In late 1985 it was decided by the Institute for Scientific Information that compact disc would be an excellent distribution medium for many of its major products, including the Science Citation Index, the largest multidisciplinary index to scientific periodical literature.

The first step toward this goal was the creation of a compact disc prototype of the subject index portion of the SCI. The prototype has been used for demonstration and for obtaining input from potential users on design features as the product has been further developed. The prototype of the Permutern Subject Index allows users to enter a term and then scan terms that co-occur in titles with the selected term. In this way users are able to build Boolean search queries without predefining combinations of terms.

An additional feature built into the CD ROM prototype, which is not available online or in print, is what we are calling the "related record" feature. This feature enables the user to find articles related to a known article. By the press of a key, the article most related to the article already being displayed is brought up on the monitor. Relatedness is determined within the program by the number of references the articles share.

ISI® has been testing and obtaining feedback on this prototype for nearly a year while continuing to develop a full commercial version of the Science Citation Index on compact disc for release in late 1987.

Below is a description of the product ISI expects to announce later this year.

Product Overview
Like its print counterpart, the Science Citation Index Compact Disc Edition will provide in-depth access to nore than 3,300 scientific and technical journals published internationally – approximately 600,000 source articles per year. The searching capabilities of the SCI CD Edition will provide much of the flexibility of an online file as well as enhance the many benefits of the SCI in print.

The SCI CD Edition will consist of four major components: the Permuterm Subject Index, the Cited Author Index, an Institution/ Author Address Index, and the Source Author Index.

The system will require the use of a hard disk drive, 640k RAM, compact disc reader/drive, a printer and IBM compatible microcomputer with MS DOS 3.1 or equivalent (Microsoft CD Extension).

The SCI CD Edition is expected to be updated bimonthly with each update being cumlative throughout the year.

General Features
The product will facilitate user browsing and maximize the number of alternative search paths available to the user.

A series of windows and menus will be utilized to guide the user through a search. Search terms may be entered by the user directly from the keyboard along wtih the qualifiying logic or terms selected from browsable lists.

The basic source record in all of the indexes will consist of: author name(s); source item title; language (if other than English); document type (if other than article); source journal name, volume and number; beginning and ending pages; year of publiction; The Genuine Article (sTM) number; number of references and number of related records. Author addresses and references may also be displayed where appropriate. The user may also browse record sets by title alone.

Related Records
Records which are biliographically coupled to another source record (share at least one reference and meet a weighting critertion developed by ISI) may be reviewed for any given source record. By providing an indirect link to records in the same subject area, related records offer the user a means of expanding searches – finding new records, new title vocabulary, new authors, etc. – beyond known access points.

Online Help
Context-sensitive online help screens may be called up from any point in a search. An index to the help system will also be provided so that a user may request the discussion of a specific feature.

Search Strategy
Search strategy will be automatically saved as a search is conducted. A strategy may be reviewed during the search session, edited and printed out or saved to diskette.

SDI and Back-Year Searching
Previously developed searches that have been saved to diskette may be run selectively against the new data on an updated disc or run against an earlier or later disc.

Document Delivery Service
A user may automatically prepare an order form to request articles from The Genuine Article, ISI's document delivery service.

Printing / Saving to Disk
Records may be printed individually as they are reviewed, or collected to be printed or downloaded to disks. Duplicates will automatically be culled from collected record sets.

Index-Specific Features
The Permuterm Subject Index
A dictionary of primary terms (all indexed title words) will be available for user browsing and term selection. For a given primary term the user may also display a list of co-occuring title words (co-terms) to browse for further term selection.

The Cited Author Index
The user may identifiy records which cite a given author of a specific work by entering a cited author's name. A dictionary of cited authors' names will be available for browing and selection; the user may also review the works associated with a given cited author and make selections from this list.

The Author/Address Index
For access to source records by primary or secondary author, the user may enter a source author's name. A dictionary of author's names will be available for browsing and selection. The user may also review the list of current works associated with a given source author and make selections from this list. Access will also be possible through specific elements in author addresses, e.g., institutional name, geographic location.

95-BIOL-4-E

INTERACTIVE VIDEODISC: RESOURCE AND LEARNING MATERIAL

David R. *Clark* Ph.D., *Director, University of London Audio-Visual Centre,*
and Elizabeth M. *Oliver, Director, British Universities Film & Video Council, UK*

ABSTRACT
Videodiscs have opened up possibilities for the efficient storage of the large quantity of images that are required for both research and teaching in the biological and medical sciences. Although most of the activity to date has been in the field of 'resource discs', the computing environment now exists for the development of interactive learning materials.

It is a matter of great good fortune that a time of explosive growth in the quantity of information essential to the proper appreciation of our world there has been developed a storage system commensurate to the task: the LaserVision videodisc. That the retrieval systems for this

information are at present inadequate to the task is a matter for concern; nevertheless the difficulties are in the right place since, so long as the information is stored, it can wait for a working system to make good use of it. Videodiscs can hold some 55,500 individual analogue video images on each side of the 12 inch platter. What is not so well-known is that this same platter can hold some 330 megabytes of digital date at the same time. The format which allows the holding of digital data as well as analogue images is known as LV-ROM. The systems on show at the IFLA Conference will not be LV-ROM-they will be standard Laser Vision discs, but librarians need to be aware of the further potential of the new technology.

Storage capactiy on this scale is particularly important for what are known as *resource disc*. There is a great scope for development in this areas, since most fields of biological science require large visual databases. One of the very first discs produced was composed entirely of haemaglutination pictures. There is a second class of videodisc, namely the *concept disc*. In such a disc, all the pictures are contingent; that is to say, they are each there because of the others, and all of them are there to tell a particular story. Such discs differ from resource discs, in which each picture is there in its own right so to speak, given only that it belongs to the general class of pictures that the disc is intended to contain. Already there are several resource discs in the general field of biology. No-one has yet produced a biological concept disc, although that day cannot be far off. The small-scale programs created for the *Cell Biology* videodisc produced by the Institute for Scientific Film in Göttingen give only a hint of the full potential that can be realised in a teaching scheme in which many a common misconception, as well as the received wisdom, has been carefully woven into an interactive programme in which the learner drives the system at his or her own pace.

The ability to present almost unlimited number of images brings with its own problems. The images must be part of a database makes their retrieval possible. Unfortunately, this is not as simple a task as might at first appear, because, to be genuinely useful in a teaching context, this database must be accessible from a position of ignorance: things are easy to find if you understand the classification scheme and know what it is that you are looking for; this cannot, however, be the condition of a learner exploring unknown territory. Earlier work suggests that there may, indeed, be a method of specifying features in such a way that it is practicable to search a representation of the contents of a picture directly, rather than search a database of words about the picture. This work is by no means complete, but there have been some intermediate results that are of particular interest.

One of the things commonly required in the presentation of ideas that derive from images of objects in the real world is to be able to assign particular meanings to parts and regions of an image. For example, the constituent components of a cell need to be named. This is easy to do in a computer-based system, provided that real-time graphics can be overlaid on the picture of the cell. However, things are not so easy when the student's knowledge and comprehension of the facts thus presented are to be tested. The simple solution: '"is the nucleus the thing marked 'A', the thing marked 'B' or the thing marked 'C'?'" is not a good way of testing the sutdents's knowledge because it presents the question and partly answers it at the same time. A more approriate method is to present the picture and to ask the student to point to the region required; the only 'clues' are the biological ones in the picture itself. Many computers now use 'Mouse and Icon' environments (pointer devices rather than keyboards) which make it possible to assign biologically significant meanings to all the pointer positions in the screen. It turns out that the computer merchanisms for this task are exactly those required to construct generalised picture-descriptors for an image database.

These ideas are being developed using the two resource discs in anatomy that have been produced by the University of London Audio-Visual Centre. These two discs, on the Knee and the Inguinal region, contain large numbers of still and moving images of all kinds. Ways have to be found, therefore, to encode the fact that for any particular point on an image there may be views at different magnifications and angles, at different levels of dissection, as different preparations or conditions, and with different forms of imaging. At conventional character resolution, which divides the screen into about 1000 cells each represented by one byte, it is possible to make a usefully dense map indicating the presence or absence of any of 8 characteristics. The precise choice of these characteristics is defined by the problem at hand but in this example each set bit could indicate the existence of another image of that point of a particular kind, up to a total of 8 kinds. Instead of different kinds of picture, the set bits could indicate significant cellular structures or even more general classifications such as 'is surrounded by like' or 'foreground/ background'. Whatever their meaning, these bytes form an array that represents a level of menaing in the picture and which are, by their very nature, computer-searchable.

The benefits that can be obtained in such fields as virology and cancer research by having large and easily accessible databanks of images is now recognised; there is a number of initiatives in these and other fields to use the capactiy of the new LV-ROMs for this purpose.

137-BIOL-5-E

CD-ROM TECHNOLOGY AND ITS POTENTIAL FOR NEW BIBLIOGRAPHIC PRODUCTS AND SERVICES

Tony McSean, *Head of Marketing and Support, British Library Bibliographic Services, London, UK*

ABSTRACT

CD-ROM a slow high capacity data storage medium. It has similarities to print but allows more powerful retrieval facilities. The current generation of technology uses industry wide standards and promises a stable environment for a few years.

INTRODUCTION

Although the emergence of CD-ROM technology in the last three years has aroused huge interest in the library and information community, it is only comparatively recently that where viable products and services are beginning to appear. This paper is intended to give a guide to the basic characteristics of CD-ROM and to explain how bibliographic agencies such as the British Library Bibliographic Services are planning to use these characteristics to improve our services to the profession.

The Characteristics of the technology

Large capacity: A single CD-Rom disc can contain up to 550 megabytes of data storage. To give some comparative figures: a floppy disc will contain between 0.1 and 1.2 magabytes, hard discs on personal computers typically contain 10 to 80 megabytes and the most common type of disc used in maingrame and minicomputer applications contain 300 megabytes. The entire cumulated BNB database of almost a million MARC records, fully inverted, would fit on two or three CD-ROMs, and the cumulated LCMARC Books All file occupies between three and six discs, depending on the scale of indexing.

Slow speed: Retrieval from CD-ROMs is very slow in comparison with other disc storage media – up to twenty times slower than conventional hard discs.

Durability: While not completely indestructible, CDs are sufficiently durable to be distributed by post, and effectively never wear out under normal conditions of use.

Cost of production: CD-ROM shares many production cost characteristics with printed products: the set-up cost is extremely high, but the cost of producing the marginal copy declines steeply as the production run grows.

Concrete physical product: Another characteristic common to both CD-ROM and printed products is that they each contribute to a library's *collection* in a far more tangible way than do more conventional data distribution services such as onling IR and magnetic tape.

Industrial support: The hardware necessary to exploit CD-ROM is readily available and cheap. In industrial terms CD-ROM is little more than a fortuitous new market for the sale of personal computers and a direct spin-off from the audio compact disc (CD-A) industry. As the world market for CD-ROM develops this link may be expected to diminish in importance, but for the immediate future both disc production and disc drive design for CD-ROM are very closely tied in with the CD-A market.

Integrated package: CD-ROM products normally consist of an integrated package of data and retrieval software, contained on a single disc.

The consequences for product design

The above elements each help in determining both what can be achieved technically by using the CD-ROM medium, and what can be turned into an economically viable product which will be of general benefit to the library and information community.

With a storage medium of this capacity and accessibility, it ought to be possible to generate a demand sufficiently large to transform the

economics of wholesale database distribution. With distribution on the sort of scale that a comulated British National Bibliography might be expected to achieve, the marginal cost of producing additional disc falls to well below £10.

The retrieval times offered by the current generation of disc drives effectively limit CD-ROM applications to a single-user environment – which has meant in effect a personal computer environment. There are various experimental applications in this area, but to date this limitation is still a fact of life. Regarded positively, by making full use of high-powered microcomputers, suppliers have been able to wrap their database products in elaborate and user-friendly retrieval packages. On the other hand, the inability of CD-ROM drives to support serious network applications in connection with other information systems operated by libraries. It also limits the extent to which CD-ROM products will be able to compete with other formats.

The high fixed cost of setting up a production run makes CD-ROM an unsuitable medium for the distribution of rapidly changing databases and ideal for applications such as early back-files of titles where the database is valuable and static.

In terms of the what we and other National Bibliographic Agencies are likely to produce on CD-ROM, this favours cumulated retrospective cataloguing databases and catalogues of specialist and scholarly interest, and works against using the medium for libraries' current working catlaogues or as interlending availability guides.

Within the library community, the acceptability of CD-ROM has an intangible but significant advantage over online services in that it is a deliverable, finite product and can be made to appeal to the profession's instinct for collection building. This is reflected in the care which has been invested in the packaging for CD-ROM products. It also opens up the possibility of packaging in the broader sense of the word – structuring services in such a way that the customer is encouraged to subscribe to more than the core requirement which triggered the initial decision to buy.

Finally, the current generation of CD-ROM technology looks to be firmly anchored in wider industry standards. The discs and readers are closely allied to the audio market for economic reasons; and the computing component is completely tied to the dominant IBM PC and AT 'standard'. At the cost of serious performance limitations, these constants remove the cost of hardware as a serious limiting influence on the growth of the market (before the end of the year it will be possible to buy an Amstrad PC1512, a built-in Hitachi CD drive and a printer for under £1,000). The inertia which inevitably attaches to standards also appears to offer the prospect of at least two or three years' relative technical stability in which worthwhile products and services can be developed.

28-SOC-1-E

CD-ROM IN THE SOCIAL SCIENCE REFERENCE ROOM

Bruce D. Bonta, *University Park, USA*

ABTRACT

Library patrons are pleased to have free access to online database in the form of CD-ROM, and library administrators appreciate the fact that online searching can be provided for a fixed, knowable cost. Placing CD-ROM equipment in a reference room poses wiring difficulties that the flexibility of carpet tiles and flat wie installation should alleviate. Servicing equipemnt and the high cost of paper and ink supplies for the printers are additional problmes, through solutions--having replacement equipment in-house and requiring the use of debits cards--are available. Whatever the problems, CD-ROM is rapidly changing the social science reference room.

The focus of this paper is on management and use of the CD-ROM databases in the social sciences refernce room. It is necessary at the outset to describe the setting where these observations are being. The Pennsylvania State University Libraries serve a large rural universtiy of over 33,000 students with collections of more than 2.5 million volumes, 26,000 serial subscriptions, nearly 2 million microforms--in other words, a large research library. The library system includes a number of branch collections in science, technology, and arts, plus, in the central library building, a General Reference Section which serves general bibliographic needs, some areas of the humanities, and, the most dominant aspect of our service, the social sciences.

Patrons at Penn State first gained access to computer terminals in the library in 1983 when the Library Information System (LIAS) was made available for public use. Providing access to the entire book collection with a very "user friendly," menu-driven system, LIAS was an instant success with students and faculty. One of the reasons for that friendly design is a feature that allows patrons to press a SEARCH function key and type in author, title or subject. Many of the words which students would type into LIAS were really the initial words for book titles rather than correct subject headings from the- seaurus that Penn State follows, the Library of Congress *Subject Headings*. Students might find a few titles and miss the wealth of resources that a proper search strategy would have turned up, but the critical point is that they were satisfied with some results. Finding a few references through the magic of the computer has been vastly better than the old card catalog approach to life. Of course, some patrons have persisted in learning how to exploit the full range of resources catalogued through LIAS by reading the printed guides, using the online help screens, or asking for assistance at the reference desk. With the success of LIAS, many students behan to ask when they would have access to magazine and journal articles through the system.

Purchase of the *InfoTrac* optical disc system and its placement in the Penn State Reference Room in January 1986 had an electrifying effect on the student body. With strong indexing coverage of nearly 1000 business periodicals, popular magazines, and a few journals from the social sciences, *plus* a very simple operating system, *InfoTrac* seemed to be the answer to everyone's needs. The *InfoTrac* subscription includes, for $14,000 per year, use of the laser disk player, two IBM-PC's and printers, a new disk each month with about five years worth of updated bibliographic inforamtion, and the operating software. Users search for aarticles with the Library of Congress subject headings, and since the system has no sophisticated capability for boolean operations, truncation, key word searches, limiters, etc., it is extremely simple for students to use. And most populaar of all, they can push a bitton and print out, on a silent printer next to the terminal, a single reference or a whole screen-full of references free of charge.

In December 1986 a second optical disk system, *Compact Disclosure*, was added to the Reference Room. With its extensive business information and analysis on 10,000 U.S. companies, the ease of use of the system, the free printouts, and the ability to download information to the user's own floppy disks, the new CD-ROM product was as immediately popular as *InforTRac* had been earlier. Since user acceptance was ao strong, Penn State has invested in a third product, the ERIC system which indexes U.S. educational documents and journals and is sold in CD- ROM form by Silver Platter, INc. Other products are being actively considered--most notably some of the WilsonDisc databases and PsycLIT-- and subscriptions will probably be placed shortly.

While the users have been quite enthusiatic about the CD-ROM products, both at Penn State and other American libraries which have reported their experience in the literature, there are a number of issues from the perspective of reference service management which need to be considered, First of all, the fixed, knowable cost of the CD-ROM database service appeals to administrators, in contrast to the vagueness of appropriating an amount of money to support online searches of the equivalent database. Even allowing for the purchase of equipment--microcomputer, printer, CD-ROM player and cables--the fact that the costs are definable and the library receives a finite product--the CD-ROM discs--makes the service much easier to justify to higher level of administrators.

One of the most critical isues in the Penn State Reference Room is the physical placement and arrangement of new CD-ROM equipment. Since we believe that these indexes and services should be placed in close conjunction with the printe volumes that they complement, we are having a lot of problems accommodating them physically. The reference room provides a spacious (12,600 square feet or about 1170 square metres), effective area for the use of about 40,000 reference works, hundreds of indexes and abstracts, amny on large index tables, plus special areas such as the reference microfiche area. Opened in 1972 , the room does not allow for the power needs, data tranmission, or other comminucation possibilities that the CD-ROM technology requires. Most of the room has a coffered concrete ceiling, the floor is a 16 inch thick concrete slab that defies drilling, and the only power is available at the concrete support columns 22 feet apart. The present placement of LIAS terminals, microfiche readers, CD-ROM stations, plus other electionic equipment used by patrons had taken nearly all of the available column locations. Placing a CD-ROM product that includes a data transmission feature from a remote computer, such as the WildonDisc services, will be very difficult for us without a lot of construction costs.

An obtacle to expansion of CD-ROM services in the Reference

Room is the high cost of paper and ink for the printouts, which so far patrons have recieved free of charge. We estimate that the two printers used with *InforTrac* consumed over $1300 of ink catridges and paper in 1986. One option that the library is exploring is the possibility of requiring users who want printouts to buy cards that encode the amount of money deposited, which can then be used for each printout with a few cents deducated electronically off the card for each print. These debit card, used in some urban transit system, are already in use in a few libraries.

The future of CD-ROM in the social science refernece room is hard to predict. One constant factor is that we will enjoy continuous change, through the needs fro printed materials, electronic information, and a skilled staff to assist in their use will persist for many years. A possible long-term solution to online access to database at Penn State may be the purchase of tapes from the producers, which could be loaded into the library's main frame computer and made available directly through the LIAS system. Penn State officials are actively talking with major database producers about this possibility. The CD-ROM products may only be a temporary phenomenon. Another future possibility--indeed a probability--is that reference librarians will not feel as tied to a long-term commitment to any specific CD-ROM product as they are to a printed indexing or adstracting service. The bound volumes have a cumulating, self-perpetuating character, but good software and a reasonably comparable database on an optical disc could easily be substituted for a competitor's product at the beginning of a new budget year. For example, Penn State has subscribed to the *Education Index* as well as the *Current Index to Journals in Education* (CIJE) for years, the former for speed and simplicity of use, the latter for comprehensivness and article abstracts. Depending on the success of the CD-ROM ERIC subscription, of which the CIJE database is a part, we will be constrantly evaluating whether or not to keep our subscription to one or both of the print subscriptions, and whether or not to subcribe to the *Education Index* on CD-ROM (one of the WilsonDisc services). Price, accuracy, effectiveness , ease of use will all be factors--but "brand loyalty," if a marketing term may be used, will not play much of a role.

Finally, it is gratifying that the cutting edge of the information technology, the CD-ROM, is making very fast progress in the social science reference room. The usual lead that the sciences and technology have over the social sciences has been blunted because the enormous database in those fields wpuld require several CD-ROM discs for even one year of data. The technology is really most appropriate to the somewhat more modest size of the database in the social sciences. The social sciences refernece room is increasingly exciting place to work because of it.

IFLA GENERAL CONFERENCE, BRIGHTON

Division: Special Libraries

Section: Social Science Libraries

1887

192-SOC-2-E

Continuing Education in Information Technology

by
Darlene E. Weingand
University of Wisconsin-Madison

KEYWORD(S):

Continuing Education
Information Technology
Librarianship
Teleconferencing

For internal use only:

To be brought to meeting no:

162

Remarks:

Darlene E. Weingand, Ph.D. - 1
University of Wisconsin-Madison, USA

Continuing Education in Information Technology

Today's libraries and information agencies are operating in a world where change is a constant--a given. In many ways, it is the only constant. It is true that change has always been a part of human experience, but the rate of change today is so rapid and profound that it has exceeded the realm of normalcy and has become a force to be both understood and worked with in creative ways.

A mere century ago, libraries were defined as repositories for books and other printed materials. Today, an expanding range of formats contain information and are used for both educational and recreational purposes. The potential for linking people and needed information quickly and accurately has progressed geometrically and the functions of access and storage have advanced beyond the wildest dreams of most of us.

Michael Koenig, in his article in the February 1, 1987 issue of Library Journal, divided this exponential growth into three stages:

Stage I [pre 1971], where the growth of computational capacity resulted in great hope, modest accomplishments and substantial disillusionment;

Stage II [1971-1986], where the growth of both computational capability and storage capability created an era of explosive growth of bibliographic utilities, online databases and turnkey systems; and

Stage III [beginning in 1986], where computational and storage

capacities merge with a telecommunications capacity--a convergence that means, in Koenig's words, that we "ain't seen nothing yet!".[1]

It can be staggering to realize that this advance continues to careen forward as more and more technological developments occur. [As an example, a decade ago, few libraries seriously considered computer applications to internal operations...five years ago, CD-ROM had not yet appeared in the literature.]

As a result, the contextual relationship between library and information professionals and developing information technologies has developed quickly, without much time for reflection. Librarians seek desperately to keep up with technological development and cope with this rapidly changing information environment. It is difficult at best; it may be impossible in the long run. It is not unrealistic to suppose that librarians, like medical doctors, will find it necessary to specialize--and continually reduce the scope of that specialization so that the total profession has a measure of control over information while an individual librarian may serve more as a link in the vast information chain.

How can continuing education aid in managing in this milieu of rapid change? A look at the needs of today's library users may shed some light upon this complex problem.

The Needs of Scholars and Library Users Today

In the scholarly library, as represented by university and corporate

situations, for the forseeable future, there will be a need for three types of access:

1. Certain kinds of scholarly inquiry require the information capacities provided by the printed format;

2. There will always be students, researchers, and faculty who require access to [computer data bases] but who are not sufficiently specialized to possess the skills for independent searching; and

3. There will be a core of specialists with personal computers [or terminals] who require direct access.2

The public library interface can be viewed as relating to these same three levels of inquiry, but typically on a less technical scale. Library users may require a different type and/or depth of information, but the speed and access factors which motivate the scholar will also motivate the library user. Both computer and audiovisual technological developments will have a serious and far-reaching impact upon public library services.

The key to tomorrow's configuration of libraries at all levels of scholarly intensity presently is involved in early schooling. These children, who, in many cases, are growing up with computers, video and various forms of technology as part of their world view, will ultimately emerge as adults with a vastly more sophisticated expectation of what libraries should provide than their parents have ever demanded. It is to the satisfaction of these future needs--as well as the meeting of present

user needs--that continuing education of library personnel is directed.

The Mandate for Continuing Education

In the library and information profession, there has always been the need for updating knowledge and skills in the form of participation in refresher courses, workshops, conferences, and so forth. The current need goes much further and becomes, in many cases, a matter of re-education. A decade ago, library school curricula contained only fleeting attention to management, automation, and user studies, output measures and other research. The processes of planning and marketing were never treated in depth. Only recently have library managers begun to seriously engage in these types of activities.

Since people create, manage and operate successful libraries and information systems, it is imperative that the quality of those people be maintained. In addition, since the largest proportion of any library budget is personnel cost, it makes good economic sense that staff development and continuing education must be a top administrative priority. How this is done is an ongoing managerial concern.

While many professionals have returned to school to pursue an advanced degree and, in so doing, to update their competences, many other workers are constrained by economic considerations and require more flexible models of continuing education. These models may include short

courses and seminars [for example, a 1-2 day format, a weekend, or week] and, of course, distance learning. This learning may be engaged on an individual level or through institutional in-service training. Whatever the impetus, the need for an ongoing program of updating is imperative.

At the University of Wisconsin-Madison, both short courses and distance learning are offered to library professionals. Distance learning has taken the form of teleconferencing via both the interactive audio and the slow-scan video modes. Courses range in length from a few sessions to an entire semester. At present, all of the continuing education opportunities are noncredit, but an experiment has been authorized to offer a course in Public Library Administration via the Educational Teleconferencing Network, which is interactive audio.

In terms of short courses, the UW-Madison School of Library and Information Studies has for many years offered 3 and 4 week courses in the summer. In addition, our Continuing Education Services administers a Certificate of Professional Development, a noncredit professional continuing education program which is currently available in Library Automation, Library Management, Youth Services and Bibliographic Instruction. Students are required to complete a minimum of 12 Continuing Education Units [CEUs] [1 unit = 10 hours of effort], preferably within a three year period in order to keep the knowledge base current, but this time period is recommended, not required. Each of the four Certificate subject concentrations has three or four required core courses.

The students then choose from a selection of electives to complete their CEU requirement.

The Certificate of Professional Development has proven to be a realistic and workable mechanism through which library professionals can update their competence. The two-day course format allows persons who are employed on a full-time basis to engage in continuing education opportunities. It is anticipated that additional subject concentrations will be added in the future.

It is likely to be always true that individuals and institutions will require access to more information than they can afford to own or access themselves. Therefore, the foundation of communal ownership upon which library development has been built must be nurtured and maintained. Just exactly how this will happen in our exciting and electronic world is yet to be seen. Continuing education is the internal structure that will allow library professionals to provided the services that are needed with the excellence that is deserved. It is an adventurous and challenging time.

References

(1) Koenig, Michael E. D., "Information Systems Technology: On Entering State III," Library Journal (February 1, 1987), pp. 50-51.

(2) Ba[illegible], Patrticia. "The Electronic Library," in Liebaers, H., W. J. Haas and W. E. Biervliet, New Information Technologies and Libraries (Proceedings of the Advanced Research Workshop organized by the European Cultural Foundation in Luxembourg, November 1984 to assess the Impact of New Information Technologies on Library Management, Resources and Cooperation in Europe and North America. Dordrecht, Holland: D. Reidel Publishing Co., 1985, p. 211.

IFLA GENERAL CONFERENCE, BRIGHTON

Division: SPECIAL LIBRARIES

Section: SOCIAL SCIENCE LIBRARIES

1987

210-SOC-3-E

56

33

Leena Siitonen, Ph.D.
Assistant Professor
Graduate School of Library and
Information Studies
Univ. of Rhode Island, Kingston, R.I.,
U.S.A.

ADVANCING OPTICAL DISC TECHNOLOGY FOR SOCIAL SCIENCES IN NON-HIGH TECH SOCIETIES

KEYWORD(S):

CD ROM

OPTICAL DISC

SOCIAL SCIENCES RESEARCH

THIRD WORLD

For internal use only:

To be brought to meeting no: 162

Remarks:

to be presented orally ☒

for distribution only ☐

Introduction: Optical Disc Technology

During the IFLA General Conference in Tokyo in 1986, optical disc technology, an outgrowth of video technology, was the topic of several presentations. (e.g., Nakayama, 1986) Since then, several other conferences have included in their programs seminars and demonstrations of different types of optical discs and their various uses for small or large data bases and information retrieval. In the United States and Japan, focus has been on optical publishing, followed by keen competition of companies in the production of CD-ROM (Compact Disc-Read Only Memory) systems. It seems, hence, possible for me to assume, that the audience here has understanding of the main characteristics of optical disc technology. My presentation will concentrate on issues in social science research, communication, and bibliographic control, with emphasis on the transfer and use of this particularly technology in information services in the Third World countries.

The first commercial video disc was introduced in Japan in 1981, follwed by the introduction of a commercial audio disc in 1982. Currently, portable audio disc players sell for less than US $250. A CD-ROM capable of digital recording was developed just five years ago and has rapidly occupied market. A single CD-ROM disk can store over 550 million characters or the equivalent of 1,500 floppy discs or 200,000 pages of typed text. The storage capacity attracted the interest of data base producers and vendors. Users and potential users of optical disc technology are required to purchase microcomputer system with a sizable random access memory (512K RAM is the minimum), one or two disk drives,

and a CD-ROM drive with compatible retrieval software.

The read-only type discs are still dominant: once data have been selected, organized, and printed on the disc, it can be only read from it without changing it or adding to it. Write-once type optical discs are generally called DRAW (Direct Read After Write) or WORM (Write Once Read Many) discs. These optical discs can be recorded in real-time and read repeatedly. They can be used as image files of large capacity and as computer back-up memories. Erasable type optical disc has been developed and is expected to replace the conventional magnetic recording devices. (Metzger and Freundlich, 1987)

High recording density in an optical disc results from using a laser beam as a means of recording and retrieving. In recording, a laser beam is focussed into a one micron size pit on the discs. In reading, a lower power laser beam is irradiated on the disc placed in the CD-ROM disc drive. Specialized equipment is needed for both recording and reading, an economic factor in the production and and use of optical discs.

Social scientists and information specialists in social sciences are facing a questions of great importance. One of the basic questions is, should they consider optical disc technology for them as a new medium or a replacement of conventional media. Evidently, they must give thought--and already have given--to the effects of providing secondary services on laser discs accessible by scientists themselves? What are the possibilities in Third World countries to acquire microcomputer systems, CD-ROM disc drives, and applicable software? Where and by whom and on whose

policies will data bases be produced and distributed? By who and how will training be provided? How do prices and performance of optical disc products compare with those of online services and microform and print products? The questions do not end here. One which can be answered only in the course of coming years is: Who will make decisions on the content, indexing and abstracting methods, access methods, and quality control?

CD-ROM is an information storage medium. Over 100 or so commercially available CD-ROM applications are virtually unchanged versions of data bases that were previosuly available online or in print. CD-ROM publishing will be extended to smaller businesses such as travel, cookbooks, textbooks, how-to series, telephone directories, etc.. Companies are working on software development tools that will allow product writers and designers to add graphics, audio, and video features to their forthcoming CD-I(Compact Disc-Interactive) applications. Access time and data processing rate are frequently mentioned as a limitation of optical storage technology. The length of access time when using a data base on CD-ROM must be seen as part of a process which involves many other factors, i.e., how efficiently the software and the product design support the user's task. Mastering ("printing") and replication techniques are being enhanced, thus making optical discs applicable to the needs of libraries and information services. CD-ROM retrieval and data base management software are being developed for speciallized needs and purposes. The time to extract data from a CD-ROM will be speeded up by future developments in software designs by

programmers who write indexing and retrieval software. (Optical Memory News, 1986)

Optical discs have been in the market only for five years. Manufacturers of systems and producers of discs are eager to advance the technological progress. New features will include advanced recording media resulting from the development of new materials; lasers of higher output power; higher density of large scale integration done by semiconductor manufacturers; smaller and lighter optical parts by camera and lens manufacturers; and, very importantly, standardization of recording formats and system interfaces.

Literature about optical disc technology has multiplied in past three years, and is dominated by American and Japanese writers and publishers.(See CD-ROM: The New Papyrus) Literature about the use of optical disc medium in distribution of bibliographic data bases, indexing and abstracting tools, and data base design in Third World countries is growing very slowly.

Social Sciences: Information Services

1 Provision of Library and Information Services

In all the social science disciplines, there has been an enormous growth during the twentieth century both in the number of documents and amount of data. This growth has been continuous, with few execptions, e.g., the World War II. (Brittain, 1986: 631) The figures found in the literature vary: The survey done at Bath Ubiversity in the beginning of 1970s found more than 5000 primary journals and 500 secondary journals worldwide.(Bath University, 1975) UNESCO's publication World List of Social

Science Periodicals, 1986, contains around 3,000 titles, selected according to strict criteria. (UNESCO, 1986)

The dominant language in social sciences is English with strong contribution from North America, particularly since the early 1970s in the production of social science monograph literature. (For more information about problems and challenges facing social sciences in North America, see Prewitt, 1983.) Another important language is Russian. Literature published in other languages has remained and still remains limited within certain linguistic territories. It is not difficult to imagine that articles written in languages other than English or Russian rarely get translated for publication and use in other parts of the world. It is worth of noting that when the data was gathered as part of the DISISS project at Bath University, the researchers di not have the same ease of access to English and non-English language material. Therefore the estimates of size of the literature of the non-English speaking world remained on the low side. (Line, 1981)

Brittain (1984) has found that, not unlike literature in other fields of study the social science literature is produced by a minority of social scientists, who are predominantly academics, university teachers and research social scientists, accompanied by few policy-makers and practitioners. However, he considered it a factor which affects both the demand for information services and the supply of such services that the majority of social scientists and policy-makers do not participate in the production of literature. (Brittain, 1986:

632) Implications of this existing and obviously continuing situation are to be surveyed carefully. Particularly the latest developments in the provision of new technologies require that the mapping of both producers and users of social science literature must become a continuous activity of information specialists. At some point, the match between supply and demand seems fairly easy to achieve--in theory; however, in practice it has been difficult. Librarians and information specialists have often assumed that the more information they supply, the better their service. Brittain has pointed to social scientists themselves as those who, with their requests, have accumulated books and journals in libraries which eventually have been of very limited use. (Brittain. 1986: 633)

An assumption can be made: If there is such a great number of publications which are used or will be used only sporadically and during a short time period, it should be feasible to refine the provision of information by maintaining large data banks accessible online and augmented by specialized data bases on optical disks. How realistic this assumption is, remains a question which will be considered and analyzed in this paper from several different aspects which include: the communication systems used by social scientists, the existing data bases, the retrieval systems and technologies in use, the current developments in technologies,and the impact of internationalization of information transfer. Special attention and emphasis is given to the differences between societies and regions of the world which are part of the high tech zone and those which represent non-high tech societies.

The major groups of users of social sciences information and documentation consist of (a) researchers and academics, and (b) policy-makers and administrators. It appears that some administrators are not social scientists by training but deal with social science matters. Obviously, general public needs and uses social science information; the other users include government officials, social welfare officers, educators, and business executives. In general, the first group has available a wealth of library services, specialized collections, bibliographic services, and document delivery systems, as was found in the survey done for UNESCO. (Brittain, 1982) The diversity of user population is not the only reason, why the second group has not become active users, neither does it seem to be the diversity of materials available to them. Several researchers seem to agree upon the influence of the not so clear differentiation of services: they do not fulfill the demands of social practitioners who do not want bibliographical references or documents, but who require data to answer questions, solutions to current problems, and who are neither prepared nor allowed to spend time to read widely, not to mention conducting research or surveys. The majority of practitioners, so it is argued, question the value of social science research. It seems that the whole situation is result of communication methods and systems used by social scientists.

2 The Communication Systems Used by Social Scientists

In the so called soft sciences, the process of information-seeking often appears to be more random and serendipitous than in

the hard sciences. The terminology is also "soft," and varies considerably from one geographic or linguistic or cultural or political area to another. The formal communication systems used by most scientists: research reports and articles published in refereed journals and proceedings of symposia and conferences often do not touch practitioners and, thus, become the knowledge of the first group, researchers and academic faculty, only. The informal system of communication, by word of mouth, meetings, and the popularization of science in journals and the mass media, should keep every practitioner alerted of the major innovations and findings. Again, the factors listed above and the diversity of content have unabled practitioners to receive the type of information in the form they could utilize best.

It is not the intention of this paper to discredit the social scientists for their information seeking and transfer behavior. There exists a good evidence of factors which in essence form the basics of knowledge creation in social sciences. Brittain has discussed four aspects of knowledge creation: 1. the universality of social sciences; 2. self-cleansing mechanisms; 3. the nature of accumulation; and 4. focusing and structuring mechanisms. (Brittain, 1986: 634-35)

Of particular interest both from the communication aspect and the universal aspect is Brittain's finding that "when seeking information, social scientists behave as though the social sciences are parochial." (Brittain, 1986: 635) This argument seems to be in agreement with geographic, linguistic, cultural specialization. Brittain re-analyzed the data from the Design of Information Systems in the Social Sciences (DISISS) project and

indicated that even the major and established social science disciplines are parochial. Local surveys and studies are of major importance to the majority social scientists. Therefore, the planning and establishment of data banks and bibliographic services with worldwide coverage is not required as much by social scientists, perhaps, as it is promoted by information specialists. (Brittain, 1984) However, there are trends which indicate that a worldwide convergence upon North American social science exists among certain language and culture groups but, at the same time, these groups use different sets of North American documents. (See Prewitt, 1983: 760-61) Again, one is tempted to conclude that local studies and, thus, communication among social science researchers and practitioners within certain geographic, linguistic, cultural, and political areas should be reconsidered by information providers when planning and developing systems for information gathering, transfer and delivery. Certainly, rethinking perennial problems such as collection development in libraries and provision of interlibrary loan services must be followed by a hard look at the characteristics and possibilities of new technologies both in communication among scientists, information transfer between researchers and practitioners, and document and data delivery from information services to both user groups.

The self-cleansing mechanism of any science, and this can be applied to social sciences as well, involves ignoring and discarding of less formal records and documents which have finished their "half-life"--the range of which most often is

between four and ten years. Specialization among social scientists, like among other scientists, reduces the amount and type of information they regard as relevant to their research needs or practice. Both self-cleansing mechanisms and specialization cut down the need for large, comprehensive collections and data banks. On the other hand, the implication that social scientists use documents randomly and require a vast range of material, including local and rare documents, leads to the conclusion that a new variety of information services is needed and that this variety should developed on the peculiar characteristics of social sciences--not on those of hard sciences, as in the past.

One of the obligations of libraries is that materials accumulated in the publication process be selected before organizing, classifying and cataloging them. The same obligation is imposed also on bibliographical tools and all retrieval services. In studies on information use and transfer a major problem has been revealed time and again: The traditional library policies on selection and organization of materials very seldom take into account the information gathering behavior of scientists. For the majority of scientists, a limited range of subjects, covering a recent time period and housed conveniently nearby their offices, provides the primary source of information. On the contrary, social scientists require colossal amounts of sources from the past, covering a vast time range or a specific time period, which is difficult to predict and even harder to accomodate in any selection policy. Also, social sciences represent a challenge in terms of knowledge generation processes

and dynamic aspects of information gathering. Therefore, developers of information systems and services for social scientists should not let go their search for new methods and policies best suited for the research and communication needs of both researchers and practitioners. The unquestionable but in many parts of the world still unresearched changes imposed by computerized information systems will be discussed from several aspects.

Without drifting to far in the history and structuring of sciences, it is safe to say that authors usually represent a special group which is atypical of the total population of scientists in a certain field. From this point on, focusing on a limited number of topics, emphasis on "fashionable" areas of study, citing of the most familiar and best known authors, and general avoidance of information overload narrow down and limit the areas of study, the communication systems used, and the efficiency of information services. The problems faced by librarians who have devoted themselves to support research in social sciences are described in journals covering libraries and information services but resolving those problems seems to require different methods determined by areas of study, local interests, and possibility of publication.

3 The Existing Social Science Data Bases

The bibliographic control in social sciences has followed developments in sciences. Frequently, however, information specialists have indicated that research and communication in social sciences have unique characteristics and follow patterns

different from those in sciences, and consequently secondary services, in particular abstracting and indexing services, should provide new secondary services. New technologies, such as optical disc and its many varieties, may well become useful tools in bibliographic control. Social scientists and information specialists have tackled with several problems of bibliographic control: e.g., excessive overlap between smaller and larger secondary services, insufficient coverage of the primary literature by the secondary literature especially in areas which require interdisciplinary approach, misleading or inappropriate titles of secondary services, and illrefined focus on content areas to which professionals require access. (Brittain, 1985: 263-64)

Although it is hard to accept, there is enough evidence to suggest that one reason to the slow progress made in the social sciences towards standardization and international developments of data bases can be found in the information requirements of social scientists. Another reason was found by the UNESCO survey of eleven Asian countries which used "social science" synonymously for "social and economic statistics."(UNESCO, 1983) The unequal treatment of social science disciplines in Third World countries has not provided for efficient dissemination of research results. Perhaps a combined effort of furthering standard- ization of dissemination methods and developing efficient secondary services using new technologies would assist in bringing together social science research in developed and Third World countries.

Whatever the constraint may be, it is important to consider

the options, alternatives and possibilities which such new technologies as optical disc technology bring about, although it is clear from the outset that no technology will make social scientists use information services they do not know about or find useful for their interests and needs.

The Current Developments and Promises of Technologies

It is now possible to produce documents on computer in different scripts, translate documents using automatic translation, make use of expert systems, store data in large quantities on optical discs, communicate via electronic mail system, electronic publishing and electronic bulletin boards--also used by professional associations and organizations.

Brittain emphasized "two aspects of the new information technologies that hold great promises for a new generation of information support services in social sciences, although at the present time few librarians and information scientists are involved at this level. First, the processing speed of the new generation of computers may be ten or even a hundred times greater than the processing speed of existing computers. Second, computer scientists are developing a new generation of so-called superprograms, which facilitate the development and everyday use of expert systems and intelligent front-ends to databases." (Brittain, 1986: 639-41) Superprograms are defined to be at least twice as efficient in terms of execution cost as the best which can be written by a human programmer. (Michie, 1984) Again, differences between sciences must be considered: Low degrees of consensus (i.e., the number of agreements and certainties) which

are unacceptable to physicists and chemists, are often out of necessity accepted by researchers and practitioners in applied sciences, technology, and medicine. Social science is, according to Brittain, "weak on the two mechanisms towards which the new generation of information services is directed: namely, the development of consensus and the generation of rules and regularities from examples." (Brittain, 1986:639-40) Superprograms facilitate the development of expert systems which make computers capable of making inferences from large amounts of data. The inductive models give promises of new kinds of decision-making and tutoring programs which, given the interest and research by social scientists, will help to develop new information services for them.

The optical disc technology is now available to be used by information sepcialists to assist social scientists in developing new kinds of data bases for special purposes and uses. If it is practical to put a whole encyclopedia on one disc because the use of this publication is thus made more productive, certainly it is useful to master optical discs which contain data in fields crucial to social science disciplines in the compilations most suitable to the needs of scientists and practitioners. Many difficulties have to be dealt with, not the least being the international arena in which many social scientists are working.

International Constraints

Prewitt has reminded social scientists about a specific difficulty, when they reach toward a universal scholarship. It is the "difficulty which impedes the responsiveness of American

social scientists [who are] locked into the nation-state system..." (Prewitt, 1983: 61) In the global view, however, difficulties of social scientists in Third World nations have not been researched at all. Argentinian political scientist, Gillermo O'Donnell recently has pointed to a serious gap in knowledge of the state apparatus in Third World countries. He asserted that the state apparatus has shaped the basic features, i.e., the patterns of economic growth and class formation and even political alliances, and acts as a crucial agent in the patterns of change of most countries. He has called for comparative studies among sets of Third World countries. He is convinced that "the anatomy of such apparatuses, and their history, would tell us much. noy only about the different degrees of homogeneity of societies, but also about the ways in which different issues have been dealt with in different situations." (O'Donnell, 1980)

Both Prewitt and O'Donnell indicate the that global issues do not exist in separation from deep, strongly and often incompatible national interests. Prewitt writes "In so far as social science research amounts to anything, it will matter to the political, commercial, and military power centres of the societies in which it is practised or in which it bases itself as it studies other nations. --- Social science is supported because power centres that control funds believe it will contribute to the well-being of the nation. More specifically, international scholarship and area studies are supported because it is thought that they contribute to the nation in its various relations with other sovereign states." (Prewitt, 1983: 764) Prewitt asserts

that social scientists "would welcome a fully internationalized scholarship---to enhance and protect the international character of scholarship in a world of multiple national interests," and urges "also to analyse the constraints within which we are operating." These thoughts and assertions become timely when applied to current events in the international trade of new technologies and communication systems. (See Gareau, 1983, on the multinational social science approach.) It seems that without a clear vision and understanding of relationships among state-nations, scientific conflicts and even wars may occur. Very similar conflicts have occured in high technology, and their influence on both marketing and research and development is hard to predict.

Indian social scientist S.C. Dube recommends four options to be considered by Third World social scientists. (Dube, 1982) The first is the careful adaptation of Western social science theories to Third World conditions. The second recommends decolonization of the social sciences and involves "critical heart-searching as well as careful analysis of manifest and latent traits of neo-colonialism in Western social sciences." The third approach involves indigenization of the social sciences to be viewed as a step towards national self-reliance in the field of social sciences and towards collective self-reliance of countries that find themselves, as a consequence of colonialism, more or less in a similar economic and social position--cases of retarded growth with large pockets of poverty. Dube emphasizes that "social research does not solve problems, but it does unravel their dimensions and ramifications. Its basic strength

lies in its explanatory power, which can also indicate possible options and their likely human costs." He concludes that ending the reactive phase of Third World social science in the 1980s and working towards a consolidatory and innovative phase would be of greatest benefit.

Perhaps my analogy is fetched too far, when I remind--in a collegial manner of course--that social scientists and librarians and information specialists should establish work relationships which enable them to support one another, not only when they cover the same discipline in the same country but in particular when they make plans for interaction and cooperation with colleagues in neighboring fields in other parts of the world.

Developments in the United Kingdom

The United Kingdom is infamous for research done in the library and information sciences. It seems appropriate to look at some recent developments here in regard to the application of new technologies, problems and trends, and to trace things for further consideration in other countries.

"New technology is seen as offering teachers powerful tools for the design and organisation of learning experiences, as well as providing a source of conceptual models of the processes and strategies of learning. -- The part played by the UK teaching profession in the recent rapid expansion of educational computer usage is acknowledged, but it is concluded that much recent development has taken place in the absence of substabtial research. Attention is drawn to the lack of formal basis for the design of learning experiences based on the use of IT

(Information Technology) devices--a situation described as 'theoretical impoverishment'." (Sage and Smith, 1983:4)

The report by Sage and Smith proposed two research thrusts: The first, Learning Processes and Information Technology "would be directed towards the styles, strategies and processes of learning with Information Technology." The second, Curriculum and the Information Society, "would be concerned with the effects of the technology on and in the curriculum, and with formal and informal systems through which information and knowledge are transmitted within, into and out of the educational system." (Sage and Smith, 1983:5) The report suggested that these research programmes would demand a high degree of multidisciplinary collaboration which might be "expected to lead to fruitful synergesis and eventually to new insights into the nature of the problem being tackled." (Sage and Smith, 1983:5-6)

The research to be conducted on various aspects of Learning Processes and Curriculum should, necessarily, be focussed on future since it should relate to a demand for courseware which in turn should respond to the needs of individual learners. The main thrust of research should be "directed towards models of learning processes and the organization of knowledge applicable to the design of educational experiences and understanding of the needs of learners." It is argued that this is a fundamental need of education irrespective of the level of technology deployed. The inherent difficulty of initiating research on computational modelling of learning processes and the high cost of this approach, Sage and Smith argued, would be justified by the

probable payoff in terms of knowledge and understanding. (Sage and Smith, 1983:6) However, further research is recommended to be directed towards "the establishment of 'archival baselines' against which the effects on young children of growing up in a computer-rich culture might be measured." There is an urgent need for this type of research due to the rapid changes in society, already apparent, which will mean that there will soon be no further opportunity to study these effects.

Another concern would be the initiation of studies of the social effects of information technology. The report recommends a major initiative directed towards computational modelling of learning and cognitive processes, with the long-term objectives of providing bases for the design of learning experiences based on the next generation of IT devices; a study to provide baseline data for future research into the effects of IT on young children's thinking; and a series of linked case studies to investigate the factors which promote or inhibit the uptake of new technology and its applications by schools.

The strongest criticism expressed, in the report by Sage and Smith, is concerned with development issues: "...programmes have all been concerned with the injection of technology into the educational scene, the means by which it can be used quickly and the development of educational materials. In the latter context, the technology has been applied in a manner which to a large extent simulates traditional methods and practices. None of these programmes has been concerned with fundamental educational issues of the development of that understanding which is so essential to the successful utilization of any new technology within education

and the appropriate evolution of the curriculum." (Sage and Smith, 1983:11)

Conclusion

The optical disc technology is occupying the data storage and retrieval in social sciences as it is in other sciences and fields. There is need for social scientists to realize that a new technology brings about not only new opportunities for enhancing data handling but for changing work habits, training methods, and even the social environment.

The report by Sage and Smith concerned itself with a great variety of issues: research needs, program development, educational media, instructional innovation, and technological advancement. The report is about a particular type of technology, microcomputers, and its use in a special field, education. It seems, rather easily, generalizable to many aspects of the problems of social scientists and information specialists in social science disciplines. Will they willingly tackle all or some of these problem? When will they do it?

It is good to remember that the most serious problem is internal: social scientists themselves are responsible for developing new research strategies enabling them to make use of not only new information tools and technologies such as optical disc but of new ideas, wider areas of study, larger quantities of data, and of communication and cooperation of colleagues in any environment and any part of the world.

BIBLIOGRAPHY

Bath University. Size, Growth and Structure of Social Science Literature. Bath, England: Bath University, March 1975. (Design of Information Systems in the Social Sciences. Research Report A 2.)

Brittain, J.M. "Information Services and Kniowledge Creation in the Social Sciences," International Social Science Journal, Vol. 38, No. 4 (1986): 631-41.

Brittain, J.M. "Internationality of Social Sciences: Implications for Information Transfer," Journal of the American Society for Information Science. Vol. 35, No. 1 (1984): 11-18.

CD-ROM: The New Papyrus. Edited by Steve Lambert and Susanne Ropiequet. Redmont, Washington: Microsoft Press, 1986.

Dube, S.C. "Social Sciences for the 1980s: From Rhetoric to Reality," International Social Science Journal, Vol. 34, No. 3 (1982): 495-502.

Gareau, Frederick H. "The Multinational Version of Social Science." International Social Science Journal, Vol. 35, No. 2 (1983): 379-89.

Line, M.B. "The Structure of Social Science Literature as Shown by a Large-Scale Citation Analysis," Social Science Information Studies, Vol. 1, No. 2 (1981): 67-87.

Metzger, Norman and Naomi J. Freundlich. "Erasable Optical Discs." Popular Science, (May 1987): 56-59, 101-102.

Michie, D. "Automating the Synthesis of Expert Knowledge." ASLIB Proceedings. Vol. 36, No. 9, 1984: 337-43.

Nakayama, Naoto. "Optical Disc Technnology Used for Large-Scale Data Base." Paper given at the IFLA General Conference, Tokyo, 1986.

O'Donnell, Guillermo. "Comparative Historical Formations of the State Apparatus and Socio-Economic Change in the Third World." International Social Science Journal, Vol. 32, No. 4 (1980): 717-29.

Optical Memory News, (October 1986): 24-25.

Prewitt, Kenneth. "Social Science and the Third World: Con straints on the United States." International Social Science Journal, V. 35, No. 4 (1983): 757-65.

Sage, Morley and David J. Smith. Microcomputers in Education: A Framework for Research. London, England: Social Science Research Council, June 1983. (ERIC Document 247 902)

The Social Sciences: The Supply of and Documentation of Data. Edited by J.M. Brittain. London: Rossendale, 1982.

UNESCO. Organization of Social Science Information and Documentation: Reports on 11 Asian Countries. Bangkok, Thailand: UNESCO Regional Office for Education in SAsia and the Pacific, 1983.

UNESCO. World List of Social Science Periodicals. 7th rev. ed. Paris: UNESCO, 1986.